IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application: **Boubez et al.**

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§
§

Serial No.: **09/753,964**

§ Group Art Unit: **3624**

§

Filed: **January 3, 2001**

§ Examiner: **Hamilton, Lalita M.**

§

For: **Apparatus and Method for Verifying Categorization of Services Using Canonical Service Description Tests**

§ Attorney Docket No.: **RSW9-2000-0103-US1**
§
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DECLARATION UNDER RULE 1.131

Commissioner for Patents
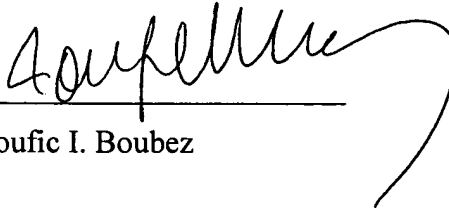P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Toufic I. Boubez, an inventor in the above-identified patent application, declare as follows:
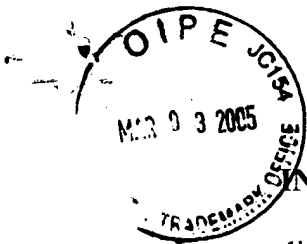
1. I am an inventor of the above-identified patent application.

2. The invention as claimed in the above-identified application was conceived on or before March 8, 2000.

3. The invention as claimed in the above-identified application was workable/reduced to practice on or before March 8, 2000.

4. The attached disclosure was last modified on March 8, 2000.

The declarant further states that the above statements were made with knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

DATE: 2/22/2005

Toufic I. Boubez

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application: **Boubez et al.** §
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Serial No.: **09/753,964** § Group Art Unit: **3624**
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For: **Apparatus and Method for** § Attorney Docket No.: **RSW9-2000-0103-US1**
Verifying Categorization of Services §
Using Canonical Service Description §
Tests §

DECLARATION UNDER RULE 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, James B. Casler, an inventor in the above-identified patent application, declare as follows:

1. I am an inventor of the above-identified patent application.

2. The invention as claimed in the above-identified application was conceived on or before March 8, 2000.

3. The invention as claimed in the above-identified application was workable/reduced to practice on or before March 8, 2000.

4. The attached disclosure was last modified on March 8, 2000.

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DATE: Feb. 18, 2005

James B. Casler

In re application: **Boubez et al.**

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Serial No.: **09/753,964**   §   Group Art Unit: **3624**
§
Filed: **January 3, 2001**   §   Examiner: **Hamilton, Lalita M.**
§
For: **Apparatus and Method for**   §   Attorney Docket No.: **RSW9-2000-0103-US1**
Verifying Categorization of Services   §
Using Canonical Service Description   §
Tests   §
§

DECLARATION UNDER RULE 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Stephen G. Graham, an inventor in the above-identified patent application, declare as follows:

1. I am an inventor of the above-identified patent application.

2. The invention as claimed in the above-identified application was conceived on or before March 8, 2000.

3. The invention as claimed in the above-identified application was workable/reduced to practice on or before March 8, 2000.

4. The attached disclosure was last modified on March 8, 2000.

The declarant further states that the above statements were made with knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

DATE: _February 15, 2005_   _Stephen G. Graham_

Stephen G. Graham

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application: **Boubez et al.**	§	
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Serial No.: **09/753,964**	§	Group Art Unit: **3624**
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Filed: **January 3, 2001**	§	Examiner: **Hamilton, Lalita M.**
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For: **Apparatus and Method for**	§	Attorney Docket No.: **RSW9-2000-0103-US1**
Verifying Categorization of Services	§	
Using Canonical Service Description	§	
Tests	§	

Certificate of Mailing Under 37 C.F.R. § 1.8(a)

I hereby certify this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on February 28, 2005.

By: *Michele Morrow*

Michele Morrow

DECLARATION UNDER RULE 1.131

Commissioner for Patents
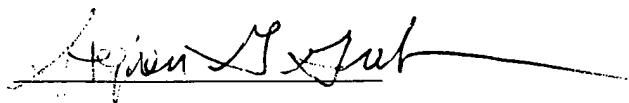P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Maryann Hondo, an inventor in the above-identified patent application, declare as follows:

1. I am an inventor of the above-identified patent application.

2. The invention as claimed in the above-identified application was conceived on or before March 8, 2000.

3. The invention as claimed in the above-identified application was workable/reduced to practice on or before March 8, 2000.

4. The attached disclosure was last modified on March 8, 2000.

The declarant further states that the above statements were made with knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

DATE: _____   _____

Maryann Hondo

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application: **Boubez et al.**	§	
	§	
	§	
Serial No.: **09/753,964**	§	Group Art Unit: **3624**
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For: **Apparatus and Method for**	§	Attorney Docket No.: **RSW9-2000-0103-US1**
Verifying Categorization of Services	§	
Using Canonical Service Description	§	
Tests	§	

DECLARATION UNDER RULE 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Stephen L. Burbeck, an inventor in the above-identified patent application, declare as follows:

1. I am an inventor of the above-identified patent application.

2. The invention as claimed in the above-identified application was conceived on or before March 8, 2000.

3. The invention as claimed in the above-identified application was workable/reduced to practice on or before March 8, 2000.

4. The attached disclosure was last modified on March 8, 2000.

The declarant further states that the above statements were made with knowledge that willful false statements and the like are punishable by fine and/or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that any such willful false statement may jeopardize the validity of this application or any patent resulting therefrom.

DATE: 2/15/05

Stephen L. Burbeck

Disclosure RSW8-2000-0043

Created By: Steve Graham   **Created On:** 03/07/2000 08:01:30 AM
Last Modified By: Steve Graham   **Last Modified On:** 03/08/2000 11:33:59 AM

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Required fields are marked with the asterisk (*) and must be filled in to complete the form .

Summary

Status	Under Evaluation
Processing Location	RSW
Functional Area	Rod Smith/Java Tools
Attorney/Patent Professional	Gregory Doudnikoff/Raleigh/IBM
IDT Team	Steven Miller/Raleigh/IBM; Art Francis/Raleigh/IBM; David Kuehr-Mclaren/Raleigh/IBM; Allan K Edwards/Raleigh/IBM; Sandeep Singhal/Raleigh/IBM; Mark Peters/Raleigh/IBM; R Redpath/Raleigh/IBM; Scott Rich/Raleigh/IBM; Thom Haynes/Raleigh/IBM; Keith Purcell/Raleigh/IBM; Virinder Batra/Raleigh/IBM
Submitted Date	03/07/2000 08:11:15 AM
Owning Division	Add/Change
PVT Score	To calculate a PVT score, use the 'Calculate PVT' button.
Incentive Program	
Lab	
Technology Code	

Inventors with Lotus Notes IDs

Inventors: Steve Graham/Raleigh/IBM, Steve Burbeck/Raleigh/IBM, Maryann Hondo/Austin/IBM, Jay Casler/Raleigh/IBM, Toufic Boubez/Boulder/IBM

Inventor Name > denotes primary contact	Inventor Serial	Div/Dept	Manager Serial	Manager Name
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Burbeck, Stephen L	730331	7J/BO9A	511488	Ruby, Carolyn
Hondo, Maryann	1A3679	7J/BO9A	511488	Ruby, Carolyn
Casler, James B. (Jay)	123144	7J/BO9A	511488	Ruby, Carolyn
Boubez, Toufic I.	720799	7J/BO9A	511488	Ruby, Carolyn

Inventors without Lotus Notes IDs

IDT Selection

IDT Team:	Attorney/Patent Professional:
Steven Miller/Raleigh/IBM	Gregory Doudnikoff/Raleigh/IBM
Art Francis/Raleigh/IBM	
David Kuehr-Mclaren/Raleigh/IBM	
Allan K Edwards/Raleigh/IBM	
Sandeep Singhal/Raleigh/IBM	
Mark Peters/Raleigh/IBM	
R Redpath/Raleigh/IBM	
Scott Rich/Raleigh/IBM	
Thom Haynes/Raleigh/IBM	
Keith Purcell/Raleigh/IBM	
Virinder Batra/Raleigh/IBM	

Response Due to IP&L : 04/07/2000

Main Idea

Framework for network-executable test cases on eBusiness Services

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.

This invention disclosure pertains to Service Oriented Architectures (SOA), and in particular, the use of Executable test cases to establish compatibility of an eBusiness Service to a category and to allow the generation of real-time Quality of Service data about the eBusiness Service.

We begin by providing background information on Service Oriented Architectures and the world of eBusiness services. Given this background, we then discuss the invention: Executable test cases on eBusiness Services.

Background

SOA

We believe we have isolated the necessary ingredients to make this world of eBusiness services a reality. It boils down to some fundamentally simple abstractions:

1.   Regard all network available functionality as an eBusiness service, encapsulate this behavior and define an API to it
•   Create eBusiness services by wrappering existing I/T application components or scripting together other eBusiness services in a workflow-style composition
2.   Describe the service using a ubiquitous, open standard, XML meta-data description format (Well Defined Services or WDS)
•   Describe the eBusiness service's API and location and categorize the "kind" or category of service it is
•   Describe the prerequisites to service access (authentication, billing, etc.)
•   Describe other aspects of the service (privacy policy, quality of service guarantees, etc.)
3.   Services are accessed based on an open standards-based protocol (eBusiness Services Protocol, eSP) layered on http and XML messaging. This protocol supports dynamic discovery of eBusiness services, negotiation of the prerequisites to access and invocation of the eBusiness services' API.

The architectural relationships between the network entities in SOA are quite simple:
1.   There are three roles a network component can play: service provider, service requestor, service broker
2.   There are three operations: publish, find and bind.
3.   The three operations involve WDS documents and are based on the eSP.

The following diagram illustrates the 3 roles, 3 operations in a SOA architecture:
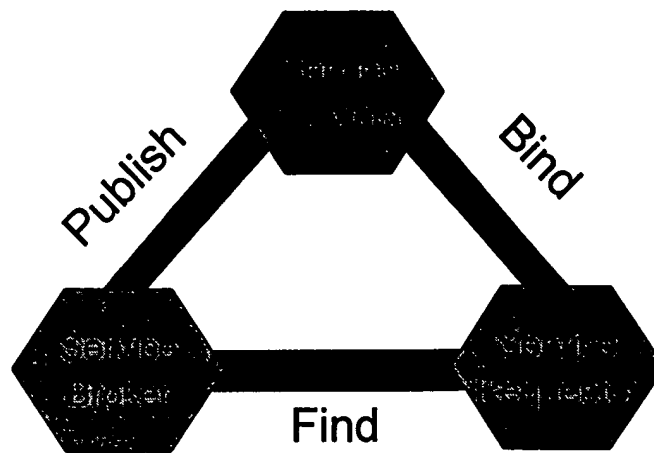
1.   A service provider publishes a WDS document describing its eBusiness service to one or more service brokers.

2.   A service requestor (e.g. another eBusiness service that requires a particular kind of service) invokes the find operation on a service broker to discover which services are available matching requirements stated in a WDS template. The result of the find operation is a WDS document for each eBusiness service that met the criteria posed in the find operation.

3.   The service requestor negotiates access to the eBusiness service with the service provider and binds to (invokes) the service.

World of eBusiness Services

The result of this paradigm shift to eBusiness services will be a world in which the World Wide Web contains thousands and thousands of eBusiness services. Applications will be built by composing existing eBusiness services to produce higher-level eBusiness services.

Innovation, in terms of technical and business models, using eBusiness services composition will be faster and cheaper than building new applications and business processes from scratch. This is particularly true if the business model requires intimate integration with suppliers or customers. Speed in innovation in the new economy is critical. Speed to innovation on the web is critical. New business models build fortunes. The new economy rewards first mover. Quicker a business can react to newly available eBusiness services, the quicker they can react to competitive opportunities/threats, the more successful they will be in the Internet economy.

eBusiness Services value proposition

In summary, the value proposition of eBusiness Services to a business is that the approach:
*   Maximizes reach to customers,
*   Increases choice of suppliers/partners,
*   Increases flexibility of business processes,
*   and increases speed of execution
*   while minimizing development and deployment cost and time to market for new eBusiness functionality.

This yields a single technical strategy: start with existing eBusiness applications, decouple, encapsulate,

then reintegrate them into eBusiness Services. This provides the necessary flexibility and adaptability of eBusiness Systems to compete in emerging eMarketplaces.

Executable Test Cases

The problems addressed by executable test cases:

a)   How can a service broker or taxonomy server determine that a candidate service is in fact appropriate for a given category?

b)   How can a service requestor (in collaboration with other services such as a services crawler) get reliable quality of service information about a service?

2. How does the invention solve the problem or achieve an advantage,(a description of "the invention", including figures inline as appropriate)?

We use executable test cases, associated with the canonical service description to address the problems outlined in the previous section.

Canonical Service Descriptions are service descriptions that define a taxonomic category. Thus the executable tests for membership in the category, i.e., a test for each "method" in the service, are run against any service proposed as a candidate for a given category. It should be noted that services could spoof the test by ensuring that the canonical tests work. Running the tests is simply a mechanism for doing a first cut automated membership test. Social and legal constraints will also evolve to discourage spoofing. And, sophisticated tests will be run by crawlers that will be more difficult to spoof. Services crawlers are discussed in more detail in another disclosure.

The canonical service description for each category must include a set of executable tests, described in XML, by which it can be objectively and automatically determined that a service satisfies the requirements for being included in that category. Security constraints on some services may require that the taxonomy server (an optional component of a service broker responsible for maintaining a taxonomy of eBusiness services) be given special certificates or other authentication information as a part of registration so that it can execute the tests. In situations that call for extreme security, authentication, or encryption, the taxonomy server may only receive exceptions in response to the tests. Even in that case, though, it should receive the correct exceptions, i.e., the exception received should indicate that the service is present but not responding due to inadequate authentication. The conflict between testability and security is not likely to be severe with general-purpose taxonomy servers. Highly secure services are likely to be registered with special purpose taxonomy servers that themselves are secure and have special purpose mechanisms for testing.

Service descriptions must describe APIs in an automatically testable manner. These descriptions must specify method names, parameter names, and parameter types so that services can be bound at run-time. Service descriptions must also provide executable API test suites so that taxonomy servers can determine whether the service implements what it claims to implement before registering it in a given category. If the service implements exactly the API specified in the category's canonical service description, the service description need not provide any further tests. However any additional services must be accompanied by additional tests.

The same set of executable test cases can be used to compare the performance of two eBusiness services that both implement the same category. For example, Service A and Service B are both in the same category. A requestor (perhaps in the form of a Quality of Service crawler) can execute the test cases against service A and compare the timing/cost/reliability against the same set of tests executed on service B. That way, a relative ordering of Service A and Service B, with respect to performance/cost/reliability

can be determined.

3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?
No other service-based or service oriented architecture that we have come across addresses the notion of categorization, let alone associate it with a canonical service description.

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.
This item is explained with great depth in the "Tao of eBusiness Services" by Steve Burbeck. Further information about the Service Oriented Architectures project is available from any of the co-inventors.